Standard ID:	**AP-APPDEV-001**
Title:	**Application Development Tools**
Domain:	**Application**
Discipline:	**Development Management**
Effective Date: Revision no.: Original date:	**4/29/2005** **0** **4/29/2005**

I.   Authority, Applicability and Purpose

A. Authority: Title 29, Chapter 90C provides broad statutory authority to the Department of Technology and Information to implement statewide and interagency technology solutions, policy, standards and guidelines for the State of Delaware's technology infrastructure. "Technology" means computing and telecommunications systems, their supporting infrastructure and interconnectivity used to acquire, transport, process, analyze, store and disseminate information or data electronically. The term "technology" includes systems and equipment associated with e-government and Internet initiatives.

B. Applicability: Applies to all State of Delaware communications and computing resources. DTI is an Executive Branch Agency and has no authority over the customers in Legislative and Judicial Branches, as well as School Districts, and other Federal and Local Government entities that use these resources. However, all users, including these entities, must agree to abide by all policies, standards promulgated by DTI as a condition of funding, and continued use of these resources.

C. Purpose – Currently, the State has over 10 different application development tools in production with an unknown number of versions. This standard will identify those tools and versions that are considered appropriate for the State to concentrate on in the future.

To the State, building community among the State's IT personnel is as important as building IT solutions. The main reason for this is the move towards e-Government; the coordination of services to citizens. The legacy development environments that led to stovepipe systems which are difficult to integrate into citizen-centric solutions will not work in this new environment.

One of our goals in selecting Application Development Tools is to promote an environment that will support the move to e-Government and the tight integration of services to citizens.

II.   SCOPE

A.   Audience: - This document is intended for Application Developers, their managers and application development contractors for the State, Systems Administrators, Network Administrators, and Computer Auditors. This document is not intended for use by non IT personnel.

B.   Applicability –This standard will cover all code completer's, compilers, Integrated Development Environments (IDE), installed or in use by the State of Delaware, including installations owned by the State but housed by third-party contractors. This standard does not apply to modeling systems, metadata systems, or business process analyzers. This standard does not apply to those instances where the Federal Government dictates the Application Development Environment to be used. This standard does not address production vs. test vs. development environments, or System Development Lifecycles (SDLC).

C.   Environments – All Integrated Development Environments, including Client/Server and Mainframe are covered by this standard. All tools used in the Application Development process are covered by this standard.

D.   Programming Languages – Programming Languages will be specifically addressed by a separate standard. It is clear that Application Development Tools, Programming Languages, and Modeling Tools, are tightly connected, and will become even more tightly connected as new suites are introduced and new corporate takeovers surface. The time box that we are developing standards in precludes us from addressing all of these standards at once. We recognize that the findings in this standard will be impacted by findings in subsequent standards, and we fully expect to revisit this topic in the very near future.

III.   PROCESS

A.   Adoption – These standards have been adopted by the Department of Technology and Information (DTI) through the Technology and Architecture Standards Committee (TASC) and are applicable to all Information Technology use throughout the state of Delaware.

B.   Revision – Technology is constantly evolving; therefore the standards will need to be regularly reviewed. It is the intent of the TASC to review each standard annually. The TASC is open to suggestions and comments from knowledgeable individuals within the state, although we ask that they be channeled through your Information Resource Manager (IRM).

C.   Contractors – Contractors or other third parties are required to comply with these standards when proposing technology solutions to DTI or other state entities. Failure to do so could result in rejection by the Delaware Technology Investment Council. For further guidance, or to seek review of a component that is not rated below, contact the TASC at dti_tasc@state.de.us.

D.   Contact us – Any questions or comments should be directed to dti_tasc@state.de.us.

IV.   DEFINITIONS / DECLARATIONS

A.   DEFINITIONS

1.   Integrated Development Environment (IDE): A set of integrated or semi-integrated tools for software development, often run from within a single user interface.

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2 of 9   4/14/2005   14:42 PM   STD AP-APPDEV-001 v 0.doc

a) Tool integration can either take the form of features built directly into the IDE software or plug-ins (either by the same vendor or 3rd party).

b) Common tools in IDE's: code editor, debugger, compiler, object browser (for OO languages), database connectivity, visual designers (both for user forms and/or documentation aspects), source code management utilities, code generation, language/framework context sensitive documentation (i.e., on line help), work list tracking, deployment utilities, and project management features.

2. **Embedded**: An embedded system is some combination of computer hardware and software, either fixed in capability or programmable, that is specifically designed for a particular kind of application device. Industrial machines, automobiles, medical equipment, cameras, household appliances, airplanes, vending machines, and toys are among the possible hosts of an embedded system. Embedded systems that are programmable are provided with a programming interface, and embedded systems programming is a specialized occupation.

3. **Microsoft Office Tools:** The suite of products from Microsoft consisting of Word, Excel, Publisher, and Access that can be used to develop applications. The State recognizes that Microsoft Office tools are included as a standard office tool set, and there may be local applications developed in this suite.

4. **PDA (Personal Digital Assistant):** A PDA is generally described as a data-centric mobile device. By data-centric, it is meant that the device designers prioritized the data function over all other functions (voice and games). This device was designed to be mobile. A hand held device that combines a variety of features such as computing, telephone,/fax, web and network capabilities. Some models also have handwriting and / or voice recognition features. They usually incorporate keyboard and stylus input. An example of a PDA would be the Blackberry or HP iPAQ.

5. **System Administrator**: The human being responsible for running and maintaining a computer system especially a mainframe, minicomputer, or local area network. System administrators, sometimes called network administrators, issue login names, maintain security, fix failures, and advise management about hardware and software purchases.

B. DECLARATIONS

An Application Development Environment Must:

1. Work within the State's IT Infrastructure.

2. Utilize the English language and the ISO 8859-1 Western Character Coding set (Latin).

3. Provide version control.

4. Support source control.

5. Provide backup and restore, and check-in and check-out security for the programming environment.

6. Be in General Support phase by the vendor who publishes the tool (this includes freeware and shareware).

It must be noted that any applications developed in the Microsoft Office Suite are generally not scalable for department-wide use. If the application becomes mission critical for the organization, DTI would need to evaluate the application for migration to a more scalable, robust platform. Failure to do so would result in a mission critical application that has limited or no support.

It is strongly recommended that audit trail capabilities are provided such that when the source code is changed, each change can be tied to the specific individual who made the change, with the date and time the change was made.

An ideal IDE would contain all of the following:

1. Code editor with code completion and pop up documentation as programmer writes code (including reading documentation from programmer written modules external to the current module).
2. Visual, WYSIWYG form designer.
3. Extensive on line help system.
4. An object browser for examining the properties of both your own classes and classes by third parties.
5. Integrated debugger including conditional breakpoints, step through, and the ability to debug code executing on remote machines.
6. Supports having multiple configurations in a project so that the programmer can easily compile different versions on the fly (such as a debug version vs. a release version or an intranet version vs. an Internet version).
7. A compiler which supports multiple programming languages.
8. Support for having an unlimited number of "projects" contained within a single solution structure (such as a presentation tier, an application/business tier, and a database tier for the same application).
9. Supports connectivity to multiple database platforms including Oracle, MS SQL Server and DB2 either through built-in functionality or via add-ons from database vendors.
10. Fully supports XML web services irrespective of the product used to develop the web services.
11. Source code control and team development features.
12. Migration Tools for applications written in prior versions.
13. Support for the integration of security technologies as well as multiple encryption providers.
14. Can target multiple platforms for deployment (i.e., Windows PC based, Mobile devices, web browser based, and so on).
15. Deployment tools.
16. Accommodating stored procedures for Data Bases.
17. Interface with 3rd party PDF generators.
18. Accommodates JavaScript.
19. Performance analysis tools.

V.   DEFINITION of RATINGS

Individual components within a Standard will be rated in one of the following categories. **COMPONENT RATING**	**USAGE NOTES**
• **STANDARD** – DTI offers internal support and has arranged for external vendor support as well (where applicable). DTI believes the component is robust and can be expected to enjoy a useful life of 5+ years from the Effective Date.	These components can be used without explicit DTI approval for both **new projects** and **enhancement** of existing systems. [1] *Note the useful life concern for the "Acceptable" rating.*
• **ACCEPTABLE** – DTI offers internal support and has arranged for external vendor support as well (where applicable). DTI believes the component is stable, but has a useful life [1] of less than 5 years from the Effective Date.	
• **EMERGING** – DTI considers the component to be a likely candidate for future classification as STANDARD or ACCEPTABLE within the state pending further investigation.	These components must be explicitly approved by DTI for **new projects**. They can be used for **minor enhancement** and **system maintenance** without explicit DTI approval.
• **DECLINING** – Deprecated - DTI considers the component to be a likely candidate to have support discontinued in the near future. A deprecated element is one becoming invalid or obsolete.	
• **LIMITED SUPPORT** – DTI has limited or no internal support capability for the component; or has no arrangement for vendor support for the product. Users must arrange for adequate overall support of the component through their own efforts.	
• **NOT SUPPORTED BY DTI** – DTI offers no internal support and has no arrangement for vendor support. Users must arrange for all support of the component through their own efforts.	
• **DISCONTINUE** – For reasons of overall risk, product support, high TCO, or other issues, the use of this technology is discouraged. All current instances of this technology should have a plan developed for its retirement. DTI expects to work aggressively with the users of such technologies to devise a collaborative plan.	
• **DISALLOWED** – DTI declares the component to be unacceptable for use and will actively intervene to disallow its use when discovered.	

A. **Applicability of Ratings** – The ratings and usage notes are intended to encourage technology decisions to move toward components that enjoy the full support of DTI. However, acknowledging that mass replacement of lower rated components is not feasible, DTI will allow continued maintenance, enhancement, and possibly limited new development using these components. In making such determinations, DTI may require that the requester demonstrate that they have adequate support arrangements in place.

B. **Missing Components** – No conclusions should be inferred if a specific component is not listed. Instead, contact the TASC to obtain further information.

VI.   Component Assessments

A) **Scope:** All application development tools and IDE's must be licensed in a manner appropriate to the way they are used and up-to-date with all appropriate publisher service patches. All application development tools and IDE's must be under active vendor support or agreement.

#	Component	Rating	Comments
A	**IDE's**		
1	Microsoft Visual Studio .NET Enterprise Architect Edition	Standard	
2	IBM WebSphere 5.1.2	Standard	
3	Lotus Notes	Acceptable	This technology is considered to be at risk of Declining due to IBM's pending re-write of Notes into DB2 and WebSphere
6	Oracle JDeveloper	Acceptable	
4	Microsoft Visual Basic 6	Declining	
5	Microsoft Visual Basic 5	Declining	
7	PowerBuilder	Declining	
8	Oracle Forms 6i	Declining	
9	Cold Fusion	Declining	
B	**Code Editor Tool**		
1	TextPad	Standard	
2	PeopleTools	Standard	PeopleSoft only
C	**Source Control Tool**		
1	SourceSafe	Standard	Included in .NET Enterprise Edition
2	PanValet	Standard	Mainframe
3	N2O	Standard	Mainframe
4	STAT Version Control	Standard	PeopleSoft only
5	CVS	Emerging	
6	SCLM	Emerging	
D	**Data Access Tool**		

1	Toad	Standard	
2	Enterprise Manager (bundled with SQL Server)	Standard	
3	FileAid	Standard	
4	Natural Connection	Declining	
E	**Graphics**		
1	Photoshop	Standard	
F	**Web Design**		
1	FrontPage	Standard	
2	Macromedia DreamWeaver MX	Standard	
3	HTMLKit	Standard	
4	Visual InterDev	Declining	
G	**Test tools**		
1	Mercury Winrunner	Standard	
2	CEDF	Standard	COBOL CICS
H	**Utilities**		
	PDFs –		
1	CeTe DynamicPDF Generator 2.6	Standard	
2	BigFaceless	Standard	
	Web libs -		
3	Excentrics World Calendar Popup (web calendar control)	Standard	
4	Chris Dengler Web Message Box (web message box control)	Standard	

5	Aspell (spell checker)	Standard	
6	Enfocus Pit Stop 4.05 (.pdf editing tool)	Standard	
	Visual Basic libs -		
7	VideoSoft Elastic Light 6.0 (dynamic form resizing tool)	Standard	
8	VideoSoft VSSpell 6.0 (spell checking tool)	Standard	
9	WinResources Computing VerticalMenu 2000 3.1 (vertical menu bar tool)	Standard	
10	Sheridan Data Widgets 3.1 (not .NET compatible)	Declining	
11	Sheridan Calendar Widgets (not .NET compatible)	Declining	
12	**Help tools** -		
	RoboHelp Office 9.0	Standard	